Book Review: Seeds, Science, and Struggle: The Global Politics of Transgenic Crops

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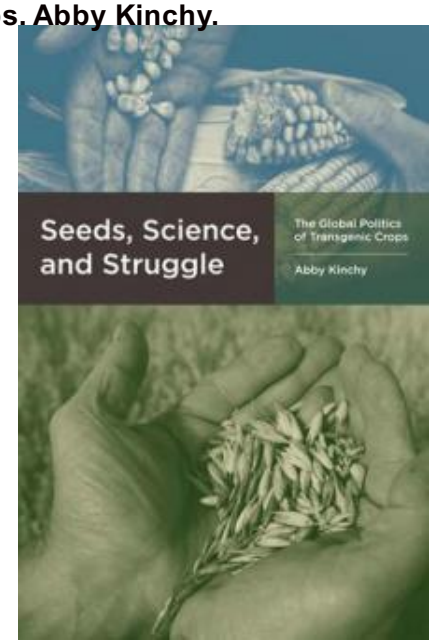
*In this study of social protest against genetically engineered food, **Abby Kinchy** takes a close look at the scientization of public debate about the "contamination" of crops resulting from pollen drift and seed mixing. Kinchy focuses on social conflicts over canola in Canada and maize in Mexico, drawing out their linkages to the global food system and international environmental governance. Kinchy's book is a valuable contribution, and should be required reading for those interested in further examining the overlap of social justice and genetic engineering, writes **Joel Krupa**.*

Seeds, Science, and Struggle: The Global Politics of Transgenic Crops. Abby Kinchy. MIT Press.



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In his magisterial, breathtakingly erudite treatise *Antifragile: How to Live in a World We Don't Understand*, Taleb explains that people are prone to confusing structurally similar but thematically different statements. He corroborates this clever observation by referencing pithy examples, such as the perplexities that invariably arise when individuals are assigned the cognitively demanding task of differentiating between "evidence of absence" and "absence of evidence" while assessing a given situation. On the surface, the consequences of this seemingly innocuous misunderstanding appear harmless, yet our innate proclivities – if improperly addressed – can quickly turn into harbingers of grave problems. We have often assumed that a lack of readily apparent problems mean safety, when in fact the opposite is often the case. The environmental studies domain is chock-full of the unexpected negative by-products of precautionary-devoid human endeavour; as David Suzuki notes, the insecticide DDT, nuclear power, and chlorofluorocarbons were originally hailed as brilliant innovations with widespread applications, with only time or empirical experience revealing their shortcomings and allowing humankind to understand the full implications of our utilization of technologies we did not originally understand.

Unfortunately, 'scientific' approaches to contemporary issues are in danger of replicating the mistakes of the past. Perhaps no better example exists than in the raging debates pitting anti-biotechnology activists and the scientifically-trained promulgators of genetically modified organisms. What started out as a laudable attempt to improve the robustness and yield of valuable food-stuff crops has, instead, morphed into an overly corporatized global food supply that is increasingly controlled by a small number of oligarchic-like organizations, intellectually-legitimized by a vocal portion of the industry-backed agriculture intelligentsia, and wholly incapable of delivering optimally nutritional food-stuffs to consumers. Smil (in *General Energetics: Energy in the Biosphere and Civilization* , p. 312) succinctly captures this evolution, noting that "intensive field cropping is a space-reduction technique and land use can be further intensified through higher energy subsidies…[however] power densities for producing these inputs are fixed, [and] there is a clear limit to these gains".

Unsurprisingly, streams of social protest have arisen in the face of this dramatic reshaping. Abby Kinchy, an Assistant Professor in the Department of Science and Technology Studies at Rensselaer Polytechnic Institute, begins to explore these backlashes by zeroing in on the food-exporting states of Canada and Mexico. In her thought-provoking new book *Seeds, Science, and Struggle: The Global Politics of Transgenic Crops,* she carefully reviews examples of how conscientious objectors are overcoming hegemonic impositions of neoliberal food supply practices through externalization to experts, civil society research, the scrutiny of science in courts of law, and market-based approaches to reform. Adopting a broader version of social movements that many commentators have used, she explains that "some definitions [of social movements] are state centered, indicating that the term social movement only applies to collective action…[yet] a social movement is a conscious, collective attempt to confront powerful opponents in order to create cultural, political, or economic change" (p.11).

Socially-minded readers will be particularly enthralled by a number of memorable case studies that Kinchy deploys to highlight grassroots resistance efforts in the face of encroaching neoliberal food growing practices. Despite the requisite brevity of a book review format, at least two (somewhat famous) examples – one from each of the regions dissected in the book – are worth recounting in some detail. First, Kinchy outlines an innovative partnership between multiple non-governmental organizations and academics which uncovered genetic contamination in the Mexican native maize crop. According to Kinchy, a UC-Berkeley researcher discovered that transgenic DNA sequences of corn were discovered in rural communities supposedly bereft of such adulteration (in spite of consistent government protests to the contrary!). Through the eventual publishing of these results in the prestigious journal *Nature* (see Quist & Chapela, 2001), activists were able to leverage the tools of the powerful to push their perspective to the forefront. Even though their attempts at attaining legitimization were partially repudiated, the government did eventually adopt "sophisticated methods for detecting contamination and monitoring transgene flow" (p. 75) in response to activist concerns.

Second, the efforts of a lonely Saskatchewan farmer named Percy Schmeiser demonstrate the alarming power increasingly afforded to transnational agro-business conglomerates at the expense of weaker citizenry. In this paradigm-changing case, Schmeiser was accused by agricultural company Monsanto of illegally utilizing patented, transgenic "Roundup Ready" canola seeds in his farming operations (see Sudduth, 2001). Schmeiser maintained that he was innocent, but eventually lost his case at the Canadian Supreme Court level. Ziff (2005) points out that this case may have far-reaching and underappreciated corollaries, with especially devastating impacts on smaller-scale farmers raising conventional crops that are unknowingly contaminated by genetically modified crop variants. More worryingly, such rulings evince a dangerous level of commodification in public spaces, as the burden of proof shifts away from corporations and towards those impacted by their rogue actions.

What concluding thoughts can be surmised from this volume? For one, non-scientists certainly have a place in scientific discourse – especially around issues that affect their daily lives. Indigenous and community perspectives are particularly important to consider, as these individuals have been immersed in the business of raising and securing food-stuffs for centuries (an unimaginable time horizon for earnings-oriented corporations) – time periods that have allowed them to observe phenomena missed by credentialed others. Second, mainstream models of agricultural risk assessment need to be reconsidered, and alternatives to the transgenic status quo must be substantially explored by the scientific community prior to being disregarded. These issues are too important to be approached with anything but far-sighted regulatory administration and prescient government intervention; accordingly, we need to re-orient our short-termist existing systems. Kinchy's book is a valuable contribution, and should be required reading for those interested in further examining the overlap of social justice and genetic engineering.

Joel Krupa is an energy and environment researcher at the University of Toronto, studying under Dr. Danny Harvey. He was educated at Oxford. Read more reviews by Joel.